Looking for Reliable Industrial Edge AI Hardware for Your Vision Analytics Project? As industrial digital transformation deepens across global manufacturing, smart city construction, energy management, and transportation sectors, artificial intelligence vision technology has become the core driving force of intelligent upgrading. Traditional cloud-centric AI deployment models are gradually failing to meet the stringent demands of industrial scenarios, giving rise to the rapid popularization of edge AI computing. Modern industrial applications including intelligent video surveillance, precision industrial machine vision, real-time traffic management, energy infrastructure monitoring, autonomous robotic inspection, and full-scene smart manufacturing all rely on ultra-low-latency, high-stability local data processing.

Nevertheless, conventional cloud-based AI architectures expose prominent drawbacks in industrial deployment. Long-distance data transmission inevitably causes high latency, which makes real-time decision-making impossible for time-sensitive industrial tasks. Massive high-definition video and sensor data transmission also occupies enormous network bandwidth, increasing enterprise network operation costs. More importantly, centralized cloud data transmission and storage bring hidden dangers to industrial data privacy and information security, which cannot meet the strict data compliance requirements of manufacturing, energy, and public security industries. In this context, industrial edge AI computing has become the optimal solution to break through these bottlenecks, realizing local data collection, analysis, and inference, with outstanding advantages in response speed, operational reliability, bandwidth saving, and data security.

For professional system integrators, OEM manufacturers, industrial automation service providers, and AI solution developers, the selection of edge AI hardware platforms directly determines the performance, stability, scalability, and comprehensive cost of the entire intelligent solution. A high-quality industrial edge AI device can greatly reduce project deployment risks, shorten development cycles, and support long-term iterative upgrading of applications. The WINS-AI 70 Rugged AI Edge Box PC is professionally developed and customized for complex and harsh industrial application scenarios, perfectly balancing high-performance AI computing and industrial-grade rugged reliability, becoming a core hardware carrier for industrial vision analytics and edge intelligence deployment.

Different from ordinary commercial mini PCs designed for stable office environments, the WINS-AI 70 abandons consumer-grade hardware design and adopts exclusive industrial hardware engineering architecture and enterprise-level AI acceleration

technology. It can maintain stable continuous operation all year round in extreme environments such as high-temperature factories, bumpy transportation systems, humid utility substations, and exposed outdoor installation sites, fully adapting to various mission-critical industrial application scenarios. Powered by advanced NVIDIA AI computing technology, the device delivers up to 70 TOPS of powerful AI inference performance, which can stably operate complex and sophisticated deep learning models at the edge. Whether it is basic vision tasks such as multi-target object detection, high-precision image classification, accurate facial recognition, and efficient OCR text recognition, or industrial core applications including product defect inspection, personnel behavior analysis, and equipment predictive maintenance, the WINS-AI 70 can achieve millisecond-level real-time inference output without delay or frame loss. Its stable and consistent computing performance effectively avoids system jitter and recognition errors caused by insufficient hardware performance, ensuring the accuracy and continuity of industrial intelligent analysis.

Modern industrial vision AI applications have far higher requirements for computing resources than traditional embedded systems. With the continuous improvement of camera resolution and the complexity of intelligent algorithms, a single device often needs to carry multi-channel video analysis and multiple neural network operations simultaneously. The WINS-AI 70’s 70 TOPS ultra-high AI computing performance completely solves the computing bottleneck of traditional edge devices, supporting developers to deploy and run multiple neural network models in parallel while ensuring the system’s sensitive response and stable operation.

It covers a full range of mainstream high-demand AI workloads in the industry, including multi-camera synchronous object detection, accurate human and vehicle recognition, intelligent license plate recognition, factory PPE compliance monitoring, regional intrusion detection, industrial product surface defect inspection, conveyor belt full-process quality control, industrial robot vision guidance, real-time traffic flow analysis, crowd density intelligent estimation, smart parking automatic management, document OCR recognition, retail customer behavior analytics, mechanical equipment predictive maintenance inspection, and renewable energy equipment operational monitoring. In addition, the platform is highly compatible with mainstream industrial AI development frameworks such as TensorRT, CUDA, PyTorch, TensorFlow, ONNX Runtime, and DeepStream. Developers can directly use familiar development environments for secondary development and algorithm

deployment, greatly reducing technical thresholds and shortening project delivery cycles.

Industrial field deployment environments are complex and changeable, with harsh conditions such as high temperature, low temperature, dust, vibration, and electromagnetic interference, which put forward extremely strict requirements for the durability and stability of hardware equipment. The WINS-AI 70 adopts an industrial-grade rugged fanless enclosure design, which minimizes mechanical moving parts and fundamentally improves the long-term operational reliability of the equipment. Its professional industrial design features cover core advantages such as efficient fanless thermal architecture, ultra-wide operating temperature range, full industrial-grade electronic components, excellent shock and vibration resistance, long product lifecycle, stable 24/7 uninterrupted operation, and zero low-frequency maintenance. The cancellation of traditional cooling fans avoids common problems such as dust accumulation inside the equipment, mechanical wear and tear, and sudden shutdown failures caused by fan damage. This unique design enables the WINS-AI 70 to adapt to various harsh scenarios that are difficult for ordinary equipment to cope with, including manufacturing production plants, mining operation sites, oil and gas field installations, outdoor transportation infrastructure, roadside intelligent cabinets, smart city outdoor terminals, power utility substations, new energy power stations, automated warehousing bases, and port logistics monitoring sites, achieving long-term unattended stable operation.

In large-scale industrial vision AI systems, multi-channel high-resolution IP cameras will generate massive high-bandwidth data streams, and network transmission capacity and stability are key factors restricting system operation. Most traditional edge AI devices lack integrated high-speed fiber interfaces, requiring enterprises to additionally configure media converters and external network equipment, which increases deployment complexity, equipment costs, and failure points. The WINS-AI 70 is equipped with integrated 10G Fiber SFP high-speed fiber connectivity, thoroughly optimizing the edge network transmission architecture. This configuration supports ultra-high-speed image data transmission, long-distance stable fiber networking, and ultra-low network latency, while effectively resisting industrial electromagnetic interference and improving system anti-interference ability. It simplifies the industrial networking structure, eliminates redundant external network equipment, and significantly reduces deployment difficulty. It is especially suitable for large-scale intelligent surveillance systems, smart transportation networks, and

automated industrial production lines, helping enterprises reduce network construction costs and improve overall system operational reliability.

In AI vision system deployment, power supply and wiring of front-end cameras have always been a key link affecting project efficiency. Traditional solutions need to be equipped with independent PoE switches and additional power supply equipment, which occupy more cabinet space, lead to complicated on-site wiring, increase construction difficulty, and raise later maintenance costs. The WINS-AI 70 integrates high-performance PoE+ LAN ports, realizing direct power supply and data transmission for IP cameras without additional auxiliary equipment.

This design simplifies on-site installation processes, reduces overall hardware procurement costs, optimizes cable management, greatly facilitates field construction and deployment, and accelerates project overall implementation progress. For distributed security surveillance systems, factory precision inspection stations, and road traffic monitoring projects, integrated PoE+ ports can effectively reduce equipment redundancy and improve the integration and simplicity of the entire solution.

In industrial project investment, the total deployment cost including equipment procurement, construction, operation, and maintenance is far more important than the single hardware purchase price. Traditional scattered equipment architectures require matching cooling systems, network switches, power supply equipment, and other accessories, with high later maintenance frequency and high comprehensive operating costs. The WINS-AI 70 integrates AI computing, high-speed network, PoE power supply, and stable heat dissipation functions into one industrial-grade device, realizing highly integrated system design.

It helps enterprises save costs in multiple dimensions: no need for external cooling fans, reduced supporting network equipment and PoE switches, saved cabinet space, lower on-site construction and installation labor costs, reduced daily maintenance and after-sales inspection times, simpler on-site wiring, higher overall system reliability, and lower long-term power consumption. These cost-saving advantages are particularly prominent in large-scale multi-site deployment scenarios with hundreds or thousands of edge AI nodes, effectively reducing the total ownership cost of industrial intelligent projects.

Dedicatedly optimized for the booming edge vision analytics market, the WINS-AI 70 promotes the transformation of industrial video applications from passive video recording and post-event review to active real-time intelligent analysis, covering multiple

high-value industry scenarios. In AI security surveillance, it can realize real-time early warning and detection of intrusion, loitering, violent behavior, fire and smoke hazards, crowd gathering, vehicle abnormal entry, face recognition, abandoned dangerous objects, and restricted area illegal access, helping security personnel respond to emergencies in the first time and greatly improve safety management efficiency.

In factory automation vision scenarios, the device supports high-precision surface defect detection, assembly accuracy verification, barcode and QR code identification, production OCR inspection, automatic product counting, packaging quality inspection, robotic visual guidance, dimensional precision measurement, color consistency verification, and production data statistical analysis. Edge real-time analysis avoids production delays caused by cloud transmission delays, realizes full-process quality control, and improves product consistency and production efficiency.

In intelligent transportation scenarios, it supports vehicle classification statistics, license plate accurate recognition, traffic congestion real-time analysis, road accident rapid detection, wrong-way vehicle early warning, pedestrian safety detection, intelligent intersection scheduling, toll station data analysis, highway real-time monitoring, and parking space occupancy detection. Local edge computing ensures millisecond-level response of traffic management systems, supporting efficient and orderly operation of urban transportation.

In smart grid and renewable energy scenarios, the device adapts to unattended outdoor and remote working environments, realizing power transformer operation monitoring, substation safety protection, thermal imaging fault analysis, power equipment anomaly detection, unauthorized access alarm, on-site worker safety monitoring, fire risk early warning, and energy asset intelligent inspection. Its rugged industrial design ensures stable operation of intelligent monitoring systems in complex outdoor environments, helping energy enterprises improve equipment operation reliability and realize refined intelligent management.

Compared with traditional cloud AI systems, edge intelligence represented by WINS-AI 70 has irreplaceable operational advantages. It realizes local processing of data generated on-site, achieving millisecond-level AI decision response, far faster than cloud transmission and analysis. Meanwhile, the device only uploads key event data instead of full-volume raw video streams, greatly saving network bandwidth resources. All sensitive on-site video and industrial data are stored and processed locally, avoiding remote transmission risks and enhancing data privacy and security. Even in

the case of network interruption or unstable signals, the edge device can still operate independently to ensure continuous AI service output. In addition, reduced data transmission volume effectively lowers enterprise cloud storage and bandwidth service fees, reducing long-term operational costs.

Focusing on the differentiated development needs of OEMs and solution developers, the WINS-AI 70 adopts an open and flexible hardware and software architecture, abandoning closed proprietary ecological restrictions. It supports the integration of custom AI models, professional vision SDKs, mainstream industrial communication protocols such as REST APIs, MQTT, OPC UA, and Modbus, as well as Docker containers and edge management platforms, providing sufficient flexibility for secondary development and solution iteration. In terms of system compatibility, it supports multiple embedded operating systems including OpenWrt, Ubuntu, Embedded Linux, Debian, and Yocto-based systems, and provides professional customized services such as driver adjustment, BSP optimization, peripheral docking, boot program optimization, security reinforcement, OTA remote upgrade, and custom firmware development, helping customers quickly build differentiated competitive solutions.

To meet the personalized hardware requirements of different industrial scenarios, Wallystech provides comprehensive OEM and ODM customized services for the WINS-AI 70. Customers can realize personalized adjustments including interface modification, storage and memory configuration upgrade, wireless communication module integration, 5G/Wi-Fi/LTE function customization, GPIO and serial port expansion, industrial I/O optimization, brand logo printing, mechanical structure optimization, BIOS parameter adjustment, and thermal scheme optimization. Rich customization capabilities shorten customer product development cycles and support customers to launch independent branded industrial AI hardware products quickly.

As a reliable choice for system integrators, the WINS-AI 70 is widely applicable to smart manufacturing, smart city infrastructure, building automation, public safety monitoring, intelligent transportation, energy intelligent management, environmental real-time monitoring, industrial IoT, machine vision detection, edge computing, and AIoT full-scene solutions. The perfect combination of high AI computing performance, industrial rugged design, professional industrial network configuration, and flexible software development support greatly reduces the difficulty and risk of large-scale project deployment.

Different from consumer electronic products with rapid iteration and short service life, industrial projects have a service cycle of 5–10 years, requiring long-term stability and consistency of hardware equipment. Wallystech provides long-term product lifecycle guarantee for the WINS-AI 70, including stable hardware platform iteration, continuous engineering technical support, regular firmware maintenance, consistent production standards, stable supply chain guarantee, and professional after-sales technical assistance. It effectively avoids project reconstruction and redesign costs caused by product iteration and discontinuation, ensuring the long-term stable operation and continuous iteration of industrial intelligent projects.

With years of in-depth experience in the research and development, design, and manufacturing of industrial networking and embedded computing platforms, Wallystech has accumulated profound technical strength in industrial edge AI computing, OpenWrt system development, embedded Linux customization, wireless communication technology, and OEM/ODM customized manufacturing. We do not merely provide standard hardware products, but focus on in-depth communication and cooperation with global B2B customers, accurately grasping scenario pain points and project requirements, and customizing exclusive full-scene edge computing solutions for different industries, helping customers realize efficient, stable, and low-cost industrial AI intelligent upgrading.

wallystech
Build IT. Secure IT. Make IT Easy!

WINS-AI 70

High-Performance AI Edge Computer

Powerful Computing • Rugged Design • Limitless Applications

70 TOPS AI Performance | NVIDIA® GPU | 8GB LPDDR5 High-Speed RAM | Wide Temp. -20°C to 60°C | Rugged Design

Unmatched Performance

70 TOPS	NVIDIA Volta™	9-Core CPU	8GB LPDDR5	16GB eMMC	SSD Optional
AI Performance	384-core GPU 48 Tensor Cores	2 x Denver 64-bit + 4 x Cortex-A57	68 GB/s	5.1 Storage	128GB / 256GB / 512GB

Flexible Connectivity

WiFi / 4G / WiFi + 4G (Optional)	Dual 2.5G Ethernet	10G SFP	Multiple I/O	802.3bt PoE
	LAN/WAN + POE Out	Fiber Optic Uplink	GPIO, COM, USB3.2	Up to 60W Output

Rugged & Reliable Design

- Fanless & Compact
- Wide Operating Temp. -20°C to 60°C
- Industrial-Grade Components
- Vibration & Shock Resistant

Versatile Applications

Smart City

Industrial Automation

Intelligent Transportation

Surveillance & Security

Energy & Utilities

Rich Interfaces

- **10G SFP Port** — High-Speed Fiber Uplink / Backhaul
- **2.5G LAN/WAN Port** — RJ45 Ethernet Uplink
- **2.5G POE Out Port** — 802.3bt PoE Output Up to 60W
- **DC Power Input** — 48V DC Jack or 802.3bt PoE
- **Multiple Antenna Connectors** — 2 x 5G Ports | 2 x 6G Ports

70 TOPS	NVIDIA Volta™	9-Core CPU	8GB LPDDR5	WiFi / 4G /	802.3bt PoE	Wide Temp.
AI Performance	384-core GPU	High-Speed Processing	68 GB/s Memory	WiFi + 4G (Optional)	Up to 60W	-20°C to 60°C